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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/595,033
Filing Date: January 04, 2006
Appellant(s): WARD, WARREN

Junqi Hang
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on December 09, 2010 appealing from the Office action mailed on June 23, 2010.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4508702	Hslao	4-1985
5827538	Cussler et al.	10-1998
Cell and Molecular Biology	Rastogi	2003
Signal Transduction in Medical Biology	Boron et al.	2003
Inflammation Research, 44, 1-10	Vane et al.	1995
New England Journal of	Catella-Lawson et al.	2001

Medicine, 345, 1809-1817

Journal of Pharmacology and Experimental Therapy 304, 940-948 Rashid et al. 2003

Journal of Clinical Investigation 108, 1167-1174 Zhou et al. 2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC §101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed invention lacks patentable utility. The instant application fails to provide adequate evidence to support the utility of the invention. Specifically, there is insufficient evidence to show that a compound which is not released on or into the body can have any medically beneficial effect. Additionally, the agents used to form the liquid impermeable but gas permeable layer (e.g. wax) are also used in the art to form controlled release formulations of drugs.

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-11, 24-28, 30-33, and 35-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention. **The specification does not reasonably provide enablement for how to use the claimed preparation or composition for the treatment of diseases**. **Applicant does not provide adequate evidence to substantiate the fact that a drug coated such that the drug that is prevented from release is surly effective**. Applicant provides no evidence to substantiate the assertion that a drug which is not released is effective at treating any diseases.

The factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Wands, 8 USPQ2d 1400 (Fed. Cir. 1988). Among these factors are: 1) scope of breadth of the claims; 2) nature of the invention; 3) relative level of skill possessed by one of ordinary skill in the art; 4) state of, or the amount of knowledge in, the prior art; 5) level or degree of predictability, or a lack thereof, in the art; 6) amount of guidance or direction provided by the inventor; 7) presence or absence of working examples; and 8) quantity of experimentation required to make and use the claimed invention based upon the content of the supporting disclosure. When the above factors are weighed, it is the examiner's position that one skilled in the art could not practice the invention without undue experimentation.

Scope or breadth of the claims

The breadth of the claim is a medically efficacious substance which is coated with a liquid impermeable but gas permeable layer such that the medically efficacious substance is prevented from release.

Nature of the invention

The nature of the invention is directed to the treatment of blocked or malfunctioning exocrine glands using a medically efficacious substance coated in a liquid impermeable but gas permeable layer.

Relative level of skill possessed by one of ordinary skill in the art

The relative level of skill possessed by one of ordinary skill in the art of medical research is relatively high, as a majority of lead investigators conducting scientific research and development in this particular area possess M.D. and/or Ph.D. in a scientific discipline such as medicinal chemistry, biochemistry, pharmacology, biology, organic synthetic chemistry or the like.

State of, or the amount of knowledge in, the prior art

The art teaches the coating of drugs or other medically efficacious substances for controlling the release of the drug. Coated drugs are well known and include, e.g., aspirin (US patent 4508702, abstract); applicant teaches the use of coated aspirin in example 3 in the specification. The prior art does not recognize the treatment of diseases with drugs which are never released.

Level or degree of predictability, or a lack thereof, in the art

Currently, there are well established methods of coating drugs. Specifically, the use of polymers, ceramics and waxes including natural wax and beeswax for coating drugs are known in the art (US Patent No 5827538, see the whole document). However, even drugs coated with polymers, ceramics and waxes including natural wax and beeswax are designed for the controlled release of the encapsulated drug. No prior art, however, teaches a coated drug which is not released upon administration. Moreover, there is no prior art that predicts that such a drug which is not released would be efficacious.

Presence or absence of working examples

The specification fails to provide scientific data and working examples with respect to the effectiveness of the coated drugs which are not released. The information provided in the examples does not meet the currently accepted scientific standards for determining the efficacy of new pharmaceutical compositions. The currently accepted practice uses double blind controls in which one group receives the

new drug and a control group receives a placebo; neither group knows whether it receives a placebo or the new drug being tested. The examples given in the specification do not have control groups. Moreover, patients know when they are receiving the ActivSignal form versus the standard form of the drug. Additionally, the agitation of coated medically efficacious substances in acidic or alkaline water is inadequate to justify the assertion that the coating is impermeable to liquids generally. It is also inadequate to ensure that the medically efficacious substance is not released upon administration to the subject since acidic and basic water do not adequately simulate all biological fluids that might be encountered by the coated medically efficacious substance upon administration to a subject. Moreover, applicant fails to specify the acid or base used and the pH of the resulting solution.

Quantity of experimentation required to make and use the claimed invention based upon the content of the supporting disclosure

As a result, one of ordinary skill in the art would be required to conduct an undue amount of experimentation to reasonably and accurately determine whether the composition of the instant application is not released and moreover to determine whether a drug which is not released is effective.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-11, 24-28, 30-33, and 35-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner was unable to ascertain the metes and bounds of the claimed invention because as written the claims are vague and indefinite. The claim language recite a preparation for use as a medicament, wherein the agent is prevented from release and dependent claims also recite known

pharmaceutical forms such as a tablet, a capsule etc. It is not clear whether the instantly claimed invention is pharmaceutical formulation since the medically efficacious substances is prevented from being released. The claims as written, therefore, are unsearchable. Therefore, the examiner did not apply any art in the rejection of the claimed invention.

(10) Response to Argument

Appellant's arguments filed on 12/09/2010 have been fully considered but they are not persuasive.

Appellant asserts that in making and maintaining this lack of utility rejection, the Examiner provides a single paragraph of 73 words (reproduced below) as reasons for supporting the rejection. The Examiner sets forth the rejection with a conclusory first sentence of lack of utility, follows with a conclusory second sentence of lack of adequate evidence for supporting the utility. In so doing, the Examiner impermissibly makes and maintains the rejection without meeting the required burden pursuant to relevant portions of MPEP cited above, namely, showing clear explanation for the lack of utility assertion, providing factual findings and support thereof, and providing an evaluation of all relevant evidence of record. Therefore, other than merely questioning operability, the Examiner has not properly established a lack of utility rejection under 35 U.S.C. § 101 in view of requirements and obligations set forth in relevant MPEP provisions cited above.

These assertions are not found persuasive because appellant is forgetting the whole history of the prosecution of record. The examiner indeed provided crucial evidence during prosecution. The examiner incorporates all of the evidences as follows:

Note: The examiner wants to bring to the Board's attention the main points of contentions in the claim language that triggered the rejections under 35 U.S.C. 101 as they are bolded and underlined below:

Independent claim 24 recites **a preparation for use as a medicament**, comprising a medically efficacious substance coated with an aqueous liquid impermeable but gas permeable **layer for surrounding and preventing release of the medically efficacious substance**, wherein the layer contains a ceramic, a clay, an inorganic non-metallic material, a polymer, a natural wax, a perforated stainless steel, or beeswax hardened with cornstarch and talc. Additionally, instant claim 25 for instance recites the preparation according to claim 24, in a form selected from the group consisting of: **a pill, a tablet, a lozenge, a bolus, a capsule, a caplet, a granule, a nanoparticle, and a microparticle**, which are commonly known pharmaceutical dosage forms.

As it is clearly seen from the claim recitation the instantly claimed product is used as a medicament which is an alleged and claimed utility by Appellant. However the medically efficacious substance is prevented from being released by the coating layer. A medicament as it is commonly known in the pharmaceutical art is a substance used in therapy or treatment. The examiners position is that if it is prevented from being released it cannot be used as a medicament.

In the Office Action which is mailed on 06/24/09 on pages 3-4, for example, the examiner responded to Appellant's argument asserting that the medically efficacious substances, such as sodium chloride, which are encapsulated, are sensed by the body **without being released into, absorbed by, or metabolized by the body via cell signaling**. In response to this argument which is the basis for the rejection of lack of utility, the examiner provided the Rastogi reference (from Cell and Molecular Biology), which indicates that there are two systems for cellular communication: chemical messengers and the nervous system (page 158, section 6.4). **Rastogi teaches that chemical messengers bind to receptors to initiate cell signaling while neurons communicate using electrical potentials**. The instantly claimed invention does not fit under either category. **Medically efficacious substances released into the body can bind to and either activate or inhibit a receptor**; **the instantly claimed invention,**

wherein the substance is not released, cannot. **Ions such as sodium can be used to create electrical potential differences across a cell membrane. Changes in the ion concentration and, therefore, the electrical potential can be used for communication. The instantly claimed invention wherein, for example, the sodium chloride is not released into the body, would not be expected to generate a difference in the electrical potential across a cell membrane**. **Rastogi also indicates that environmental factors such as pH, temperature, etc. may act as stimuli** (page 159, section 6.4). The instantly claimed invention is not an environmental factor. Neither is there any evidence to suggest that the instantly claimed invention initiates or causes a change in the environment. Rather, the evidence is that the medically efficacious substance is not released and, therefore, does not affect the surrounding environment.

In response to the examiner's rejection mailed on 06/24/09 Appellants, in their effort to discredit the selection of Cell and Molecular Biology by Rastogi, characterized it to be an elementary text book by reciting that *"Notably Rastogi is a fifteen ($15) dollar ele*mentary level paperback book, with its cover copy shown in Exhibit I. Rastogi allocates no more than 10 pages in an attempt to cover the whole complex field of signal transduction." Appellant instead submitted a segment of Chapter 4 "Signal Transduction" in Medical Physiology by Boron et al. Boron et al. teaches that
the evolution of multicellular organisms necessitated the development of mechanisms to tightly coordinate the activities among cells. Such communication is fundamental to all biologicalprocesses, ranging from the induction of embryonic development to the integration of physiological responses in the face of environmental challenges. Classically, neural and endocrine tissues have been considered the major signaling systems. However, as our understanding of cellular and molecular physiology has increased, it has become evidence that all cells can receive and process information. External signals, such as odorants, chemicals that reflect metabolic status, ions, hormones, growth factors, and neurotransmitters can all serve as chemical messengers linking neighboring or distant cells. After

reviewing the above teachings of Boron et al., in the Office action mailed on 10/05/09 the examiner pointed to Appellant that on the contrary, the examiner found no scientific inconsistencies between the relevant portions of the two text books Rastogi and Boron et al. As a matter of fact, the examiner found and pointed that Boron et al., like Rastogi, is strong evidence to the widely accepted scientific mechanisms of drug action supporting the examiner's position. The examiner indicated that cells can sense and respond to external signals. **However, there is no evidence to suggest that the external signals referred to by Boron et al., are or are similar to the claimed coated medically efficacious substance which is not released. There is no evidence to suggest that the body's response to other external signals such as mechanical stress, light, and temperature share any relation to appellant's description of the manner in which the instantly claimed preparation would interact with receptors in the body.** While cell signaling may occur based on electrical signals in addition to chemical messengers, the appellant has submitted no evidence for a signaling phenomenon involving water molecules adjacent to a medically efficacious substance despite the fact that the said substance is coated and otherwise isolated from the surrounding environment.

In the Office Action mailed on 06/23/2010 on pages 2-3 in response to Appellant's arguments asserting that the examiner has not established a lack of utility. The examiner also rebutted appellant's arguments by bringing evidences for mechanism of actions of some of the drugs such as aspirin and capsaicin that appellant incorporated in the original specification for achieving the desired therapeutic effect without being released. The examiner provided evidence **Vane et al., (Inflamm Res 1995, 44, 1-10), Catella-Lawson et al., (New England Journal of Medicine 2001,345, 1809-1817), which teaches that the mode of action of anti- inflammatory drugs is as cyclo-oxygenase (COX) inhibitors and Rashid et al., (Journal of Pharmacology and Experimental Therapy 2003, 304, 940-948), which teaches the mode of action of capsaicin is via the vanilloid receptor 1**. In both cases of aspirin or

capsaicin, they are incapable of inhibiting cyclo-oxygenase and vanilloid receptor 1 respectively if they are coated in such that they are not released.

Appellant's claimed invention does not follow the mechanisms of drug binding to its receptor so as to achieve therapeutic effects contrary to the currently accepted scientific principles. **Simply put, it violates the dogma of pharmacology**. Appellant has not provide scientifically supported credible evidence where a medicament product containing known drugs, such as sodium chloride (table salt) or aspirin which is not released has any effective therapeutic action nor does Appellant provided any mechanism of action how for such a medicament is to be effective. An invention that is "inoperative" (i.e., it does not operate to produce the results claimed by the patent applicant) is not a "useful" invention in the meaning of the patent law. See, e.g., Newman v. Quigg, 877 F.2d 1575, 1581, 11 USPQ2d 1340, 1345 (Fed. Cir. 1989); and In re Harwood, 390 F.2d 985, 989, 156 USPQ 673, 676 (CCPA 1968) ("An inoperative invention, of course, does not satisfy the requirement of 35 U.S.C. 101 that an invention be useful."). **The utility asserted by appellant is incredible in the light of the knowledge of the art.** MPEP 2107 II states that the utility asserted by the applicant was thought to be "incredible in the light of the knowledge of the art, or factually misleading" when initially considered by the Office. In re Citron, 325 F.2d 248, 253, 139 USPQ 516, 520 (CCPA 1963). **The utility asserted by Appellant is inconsistent with known scientific principles.** MPEP 2107 II states that other cases suggest that on initial evaluation, the Office considered the asserted utility to be inconsistent with known scientific principles or "speculative at best" as to whether attributes of the invention necessary to impart the asserted utility were actually present in the invention. In re Sichert, 566 F.2d 1154, 196 USPQ 209 (CCPA 1977). Appellant has not provided any scientifically supported credible evidence to support the utility of the claimed preparation.

Appellant also argues that argumento, even if a prima facie case of rejection could be argued to have been properly established, Appellant respectfully submits that ample and sufficient evidence has been made of record to support one or more patentable uses of the claimed invention. For instance, Appellant has stated in the application that Appellant's invention can be used to reduce symptoms of and/or to treat disorders associated with medical conditions characterized by blockage of exocrine glands including ducts of sweat glands. See lines 4-7 on page 1 and lines 25-26 of page 4 of the original specification.

This is not found persuasive because even though Appellant discloses that the medicament preparation of the instant invention can be used to reduce symptoms of and/or to treat disorders associated with medical conditions characterized by blockage of exocrine glands including ducts of sweat glands, Appellant has not shown and the prior art does not support how a drug that is not released can have such a therapeutic effect as claimed and described. Appellant's assertion of such a utility violates the laws of pharmacology and there is no evidence whatsoever in the record or in the prior art that Appellant can point to how for such therapeutic effect can be achieved. The mere recitation of use does not necessarily meet the requirements of 35 U.S.C. 101 unless Appellant has a credible utility that is supported by scientific evidence when the point of contention is a violation of major and well known scientific principle.

Appellant also argues that for instance, as stated in paragraph 16 of the Ward Declaration of April 5, 2010, the "Equiwinner" patches per one or more embodiments of the claimed invention have been sold to professional horse trainers in various countries including the United States, United Kingdom, Australia and New Zealand. The retail selling price has been between 123 and 130 US dollars (or the equivalent) plus carriage and tax where applicable, for a box often patches, plus two spare patches. Yet for instance also, and as stated in paragraph 17 of the Ward Declaration of April 5, 2010, the "Equiwinner" patches according to the claimed invention have been very well received by the trainers,

representing the only effective treatment known for the market. The total numbers of the "Equiwinner" patches sold in the last four consecutive calendar years were 5,000 patches, 11,000 patches, 18,000 patches, and 24,000 patches, with a market value of several hundred thousand dollars for year 2009. The magnitude of increase in sales is further reflective the high quality of the "Equiwinner" patches according to the claimed preparation. This secondary consideration strongly supports both utility and patentability of the claimed preparation. Yet for instance also, and as stated in paragraph 18 of the Ward Declaration of April 5, 2010, a quantity of the "Equiwinner" patches were provided to a UK veterinarian Dr. Steve Gittins, an equine specialist, a Bachelor of Veterinary Science and a member of the Royal College of Veterinary Surgeons. In his statement dated July 14, 2005, previously submitted as Exhibit 1 of April 5, 2010, Dr. Gittins reported a positive medical effect of the patches. Yet for instance also, and as stated in paragraph 19 of the Ward Declaration of April 5, 2010, a quantity of the "Equiwinner" patches were provided to an Italian veterinarian Dr. Paola Gulden, Vice-President of the Learned Societa Italiana Veterinari per Equini (Italian Society for Equine Veterinarians) in year 2005 to 2007 and President in year 2007 to 2009. Dr. Gulden treated a number of horses having exercise induced pulmonary hemorrhage by placing on the horses the supplied "Equiwinner" patches for between three and ten days. In her statement dated December 2005, previously submitted as Exhibit 2 of April 5, 2010, Dr. Gulden reported that "All of the horse(s) had a clear improvement of the pathological condition." Contrary to the Examiner's assertions, the commercial success and academic acceptance of the claimed invention as recited in pertinent parts of the Ward Declaration of April 5, 2010 is not only relevant to the utility analysis under 101 but also sufficient to show at least one patentable use. The Examiner's attention is respectfully directed to MPEP 2107.02 (VI), which in relevant portion provides that an applicant can rebut a lack of utility rejection using any combination of the following: amendments to the claims, arguments or reasoning, or new evidence submitted in an affidavit or declaration under 37 CFR 1.132, or in a printed publication.

These assertions are not found persuasive because the commercial success of the "Equiwinner" patches does not constitute a scientifically grounded study regarding the utility of the instantly claimed invention. Commercial success may be grounded in anecdotal evidence, good advertising, etc, and not necessarily based on the actual effectiveness and utility of the instantly claimed invention. Furthermore, the commercial success of a product has no bearing for overcoming a rejection under 35 USC 101. Commercial success is one of many other mechanisms to overcome a rejection under 35 USC 103. It must be noted that new evidence provided by an Applicant must be relevant to the issues raised in the rejection. **For example, declarations in which conclusions are set forth without establishing a nexus between those conclusions and the supporting evidence, or which merely express opinions, may be of limited probative value with regard to rebutting a prima facie case.** In re Grunwell, 609 F.2d 486, 203 USPQ 1055 (CCPA 1979); and In re Buchner, 929 F.2d 660, 18 USPQ2d 1331 (Fed. Cir. 1991). See also, MPEP § 716.01(a) through § 716.01(c). The declaration stating the commercial success of the claimed product does not prove the scientifically utility or operability of the product. Additionally, the examiner found no evidence of the utility of the instantly claimed product based on the declarations in ascertaining how a drug that is not released in vivo can achieve the treatment of the alleged pathological conditions for which operability is claimed.

Appellant further argues that the Examiner correctly admits that no prior art can be located which would teach or suggest the claimed preparation. See pages 6-7 of the Office Action of January 7, 2009. However, the lack of any teaching in the art of the claimed invention does not by itself entitle the Examiner to question the usefulness of the claimed invention, let alone to do so via impermissible mis-characterization of Appellant's claimed invention.

This is not found persuasive because the examiner did not reject the claims based on impermissible mis-characterization rather being based on the accepted scientific principles and in light of the knowledge available in the art as evidenced by the numerous references discussed above.

Appellant also argues that the Examiner asserts that the claimed invention must be released to be useful as a pharmaceutical. See page 3 of the Office Action of June 24, 2009. However, this assertion is submitted to have been misplaced at least to the extent that the claimed invention does not have to be a pharmaceutical to be useful. By way of example, the claimed preparation can be made a part of and used as a device, and particularly a medical device, which may be regarded to as a device that is: intended to affect the structure or any function of the body of man or other animals, and which does not achieve any of it's primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of any of its primary intended purposes. See Exhibit 1 of April 7, 2009. The medical effect of the claimed preparation applied as a medical device is well shown in the examples given. See Example Four on pages 30-33 of the original specification.

This is not found persuasive because the claim language does not recite a device but rather a preparation in compositional form. There is no mention of a medical device in the claim recitation. Moreover, the dosage forms of the claimed preparation listed in instant claims 25-28 are forms commonly known and used in the pharmaceutical art and claim 24 recites “for use as a medicament”, which is sufficient evidence that the claim language is drawn to a medicament or pharmaceutical formulation.

Appellant also asserts that the Examiner further asserts that the claimed preparation must bind to its receptor to be therapeutically effective. See page 3-4 of the Office Action of June 24, 2009. It then appears that the lack of utility rejection is founded on the Examiner's belief and/or assumption that an invention must have a conventionally recognized mechanism of action, such as a cell receptor binding, that must not be contrary to the currently accepted scientific principles, to satisfy the utility requirement. In fact, Appellant has not suggested that the claimed invention can only function via cell receptor mediated signaling communication. In fact, as shown in the Ward Declaration of April 5, 2010, at paragraphs 9 and 10, wherein it is stated that changes in external environment in proximity to the body

cell surfaces may be calculated to elicit a response. These proposed mechanisms may not have to necessarily work through cell receptor binding or signaling as contended by the Examiner.

The assertions are not found persuasive because, as described above, the examiner indicated that cells can sense and respond to external signals. **However, there is no evidence to suggest that the external signals referred to by for instance Boron et al., which appellant provided as exhibit are or are similar to a coated medically efficacious substance which is not released. There is no evidence to suggest that the body's response to other external signals such as mechanical stress, light, and temperature share any relation to appellant's description of the manner in which the instantly claimed preparation would interact with receptors in the body.** Therefore, the examiner respectfully disagreed with Appellant's assertions indicating that the instantly claimed invention is supported by what is known in the field. While cell signaling may occur based on electrical signals in addition to chemical messengers, the appellant has submitted no evidence for a signaling phenomenon involving water molecules adjacent to a medically efficacious substance despite the fact that the said substance is coated.

Appellant further argues that moreover, and contrary to the Examiner's assertion, there are known substances capable of exerting activities independently of any receptor binding mechanisms. Examples of these substances can readily be found in Appellant's original specification. For instance, metformin as referenced in Example 2 of the Appellant's original specification influences the insulin receptors, however, there is no suggestion anywhere in current literature that metformin binds to insulin receptors. See also Exhibit 4B of April 5, 2010 which states on page 59 that metformin impacts on insulin stimulation via intermediary molecular messengers but not directly on any cellular receptors. See also Exhibit 4A of April 5, 2010 which states at page 1705 paragraph 3 that metformin "is excreted unchanged in the urine". Metforrnin cannot both bind to receptors and be excreted unchanged in the urine. Like metformin, capsaicin as referenced in Example 1 of Appellant's original specification is another example of substances that do not function by binding to a receptor. See Exhibit 4C which states at page 229 that

capsaicin is well known to influence but not bind to the vanilloid receptor (VR1). The Examiner must use specificity in evaluating these factual findings.

These arguments are not found persuasive because, for instance, in order to rebut Appellant's assertion the examiner incorporates the scientifically accepted mechanism of action for metformin which is an oral anti-diabetic drug in the biguanide class. It is the first-line drug of choice **for the treatment of type 2 diabetes, in particular, in overweight and obese people and those with normal kidney function**. **Metformin activates AMP-activated protein kinase** (AMPK) **which is a liver enzyme that plays an important role in insulin signaling, whole body energy balance, and the metabolism of glucose and fats**. For instance Zhou et al., (J. Clin. Invest., 108, 1167-1174, 2001) clearly teaches that **activation of AMPK is required for metformin's inhibitory effect on the production of glucose by liver cells (see page 1167, first paragraph)**. Indeed it does not bind to insulin as appellant asserted but has to bind AMPK which plays an important role in insulin signaling to cause the desired effect. Furthermore, contrary to Appellant's assertion, for capsaicin to cause its desired therapeutic effect as described in the Office Action mailed on 06/23/2010 on pages 2-3, in response to Appellant's arguments asserting that the examiner has not established a lack of utility, **Rashid et al., (Journal of Pharmacology and Experimental Therapy 2003, 304, 940-948) teach the mode of action of capsaicin is via the vanilloid receptor 1**.

Appellant also asserts that support for activities without receptor binding can also be found in the published work of MacKinnon, previously submitted as Exhibit 5 of April 7, 2009, which shows that sodium is said to have a similar action to potassium i.e. proximity of both these ions to ion channels activates electrical signals. This observation is consistent with what is stated from line 20 on page 15 to line 5 on page 16 "to provide in the air and in the liquid environment of the body an amount of sodium, which appears to indicate a surplus". No binding to receptors is suggested to be involved.

These assertions are not found persuasive because the pattern of water molecules around in the instantly claimed preparation would not be expected to resemble the pattern of water molecules around an ion such as sodium or potassium, which are described in the 2003 Nobel lecture of MacKinnon. In particular, the size of the ion is important in the recognition process of the corresponding ion channel and the particle size of the encapsulated medically efficacious substance is bigger than a single ion. The work of MacKinnon relates to the recognition of aqueous ions by ion channels and does not relate to encapsulated ions which are not released. Moreover, other encapsulated medically efficacious substances of the instantly claimed invention (e.g. aspirin) are even less related to MacKinnon's work on ion channels.

Appellant further assert that without wanting to be limited to any particular theory, it is believed that the claimed preparation, when placed near to or against one's skin or placed intact in one's body, can be in signaling communication with body's exocrine glands via gases in the surrounding environment and may exert its function via influencing cell signaling and therefore delivering a desirable therapeutic effect without the substance having to be metabolized at all. See lines 20- 23 on page 16 of the original specification. The communicating gases may include water vapor in the air and residual water vapor retained within the coating layer. In addition, as the coating layer is made aqueous liquid impermeable and hence hydrophobic, water vapor in the air is attracted through the layer.

These assertions are not found persuasive because believe or opinion is not equivalent to a scientifically proven evidence. It must be noticed that new evidence provided by an applicant must be relevant to the issues raised in the rejection. **For example, declarations in which conclusions are set forth without establishing a nexus between those conclusions and the supporting evidence, or which merely express opinions, may be of limited probative value with regard to rebutting a prima facie case.** In re Grunwell, 609 F.2d 486, 203 USPQ 1055 (CCPA 1979); and In re Buchner, 929 F.2d 660, 18 USPQ2d 1331 (Fed. Cir. 1991). See MPEP § 716.01(a) through § 716.01(c).

Response to arguments in claim rejections under 35 U.S.C. § 112

Appellant asserted that as stated herein elsewhere, independent claim 24 concerns a preparation for use as a medicament, comprising a medically efficacious substance coated with an aqueous liquid impermeable but gas permeable layer for surrounding and preventing release of the medically efficacious substance, wherein the layer contains a ceramic, a clay, an inorganic non-metallic material, a polymer, a natural wax, a perforated stainless steel, or beeswax hardened with cornstarch and talc. In particular, the claim scope is sufficiently narrow at least to the extent of the coating layer of the claimed preparation is not just of any material but material that is aqueous liquid impermeable and gas permeable, wherein the coating layer is of certain specified categories - ceramic, clay, inorganic non-metallic material, polymer, natural wax,, perforated stainless steel, or beeswax hardened with cornstarch and talc.

The examiner does not disagree with Appellant's statement set forth above. However, the claims are broad when it comes to the types of medically efficacious substance that can be incorporated in such a preparation. The examiner set forth the rejections under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement for how to use the claimed product not for how to make it. The examiner set forth the enablement rejection for similar reasons set forth above under 35 U.S.C. 101. An excessive amount of undue experimentation is required to use the preparation comprising a medicinally efficacious substance that is coated with a liquid impermeable but gas permeable layer such that the medically efficacious substance is prevented from release. Neither Appellant nor the prior art provides sufficient guidance on how to use the claimed invention commensurate with the claims and the teachings in the specification.

Appellant then argues that the claimed invention can be made and used without undue experimentation. Appellant then set forth on pages 15-16 different materials that can be used for making liquid impermeable but gas permeable layers.

The examiner partially agrees with the assertion that Appellant set forth reciting that the claimed invention **can be made without undue experimentation. However the examiner respectfully disagrees with Appellant's assertion that the claimed invention can be used without undue experimentation for the reasons set forth above in the record.** One of ordinary skill in the art would need to design and develop experiments to determine how a therapeutically efficacious substance, which is not released, has no metabolic change, no chemical change, and no diminution in its quantity in the formulation, may have any therapeutic affect. Since there is no precedent in the art for such experiments, one of ordinary skill in the art would have no guidance on how to design such an experiment let alone actually conducting experiments. Techniques such as x-ray crystallography, NMR, molecular modeling while useful for probing the interactions of a drug or drug candidate with a receptor are not applicable for a therapeutic substance which is surrounded by a liquid impermeable barrier. One of ordinary skill in the art would also need conduct comparative experiments with a medically efficacious substance with a controlled release coating and an inert material coated with a aqueous liquid permeable but gas permeable layer for surrounding and preventing release of the inert material to ensure that the observed affect is due neither to the inadvertent release of the medically efficacious substance nor to the aqueous liquid permeable but gas permeable layer itself. Furthermore, one of ordinary skill in the art would need to conduct double blind clinical trials for sufficient large samples of medically efficacious substances in which one group receives the new therapy or treatment and a control group receives a placebo; neither group knows whether it receives a placebo or the new drug being tested. Therefore, one of ordinary skill in the art would be required to conduct an excessively undue amount of experimentation to reasonably

and accurately determine whether the composition of the instant claims that is not released would be effective in achieving the desired therapeutic effect.

Appellant also argues that the claimed invention can be used as a medical device. The examples given in the original specification are adequate to show the medical effect of the devices and to fully inform anyone skilled in the art in their formulation. The original specification at lines 5-10 on page 21 illustratively describes the testing needed to be done. Unlike those in the art wherein making pharmaceuticals are concerned with many parameters including dissolution, absorption, bioavability, metabolisation, elimination and so on, requiring extensive experimentation and therefore explanation and direction, these considerations do not necessarily apply to Appellant's invention. The encapsulated medically efficacious substance is not released or dissolved and is eliminated intact.

This is not found persuasive because the claim language does not recite a device but rather a preparation. There is no mention of a medical device in the claim recitation. Moreover, the dosage forms of the claimed preparation listed in instant claims 25-28 are forms commonly known and used in the pharmaceutical art and claim 24 recites “for use as a medicament”, which is sufficient evidence that the claim language recites a pharmaceutical formulation. Contrary to Appellant’s assertions one of ordinary skill in the art would be required to conduct an undue amount of experimentation to reasonably and accurately determine whether the composition of the instant application that is not released whether it can be effective to achieve the desired therapeutic effect.

Note: Appellant did not set forth any arguments with regard to the rejection of claims 7-11, 24-28, 30-33, and 35-37 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Additionally, it is impossible to ascertain the meets and bounds of the claimed invention. The claim language recite a

preparation for use as a medicament, wherein the agent is prevented from release and dependant claims also recite known pharmaceutical forms such as a tablet, a capsule etc. It is not entirely clear whether the instantly claimed invention is pharmaceutical formulation since the medically efficacious substances is prevented from being released. The examiner has given the claims the broadest reasonable interpretation and granted Appellant a great amount of interpretive leeway in trying to understand the claimed preparation and how it works.

Summary

The claims as written lack a credible scientifically accepted utility as it is required by 35 USC 101 and also are not enabled for how to use the preparation as a medicament as required by 35 USC 112, first paragraph.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/T. K./
Examiner, Art Unit 1619

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